PR-15

NUCLEOPHILIC SUBSTITUTION OF HYDROGEN (SNH) AS A SYNTHETIC APPROACH TOWARDS PENTAFLUOROPHENYL SUBSTITUTED 2HIMIDAZOLES, 1,2,3-TRIAZOLES AND ITS N-OXIDES

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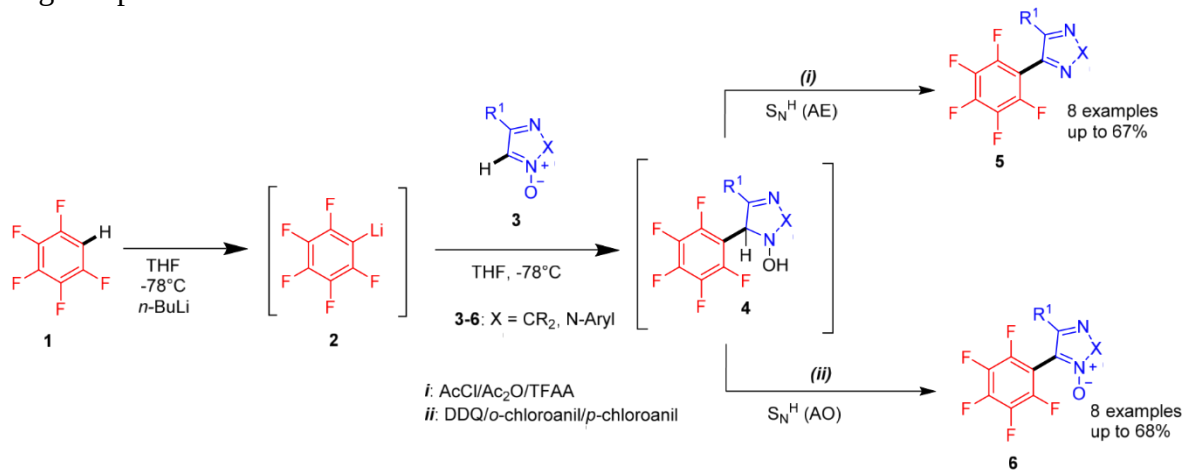
Abstract. Organic molecules containing polyfluorinated moiety, have found application in many areas of science and technology as promising materials for medical and cryochemistry, molecular electronics, as well as in the field of biologically active substances as possible cure for Alzheimer's disease.

Due to unique physical properties of fluorine atom, these molecules have increased features such as bioavailability, photophysical properties, resistance to undesirable degradation transformation.

Consequently, the development of new pot, atom and step efficient methods (PASE) for new substituted heteroaromatic compounds with pentafluorophenyl fragment is a key task for modern organic synthesis. Pentafluorophenyllithium **2** obtained from the reaction of pentafluorobenzene **1** with *n*-BuLi reacts with 2*H*-imidazoles and 1,2,3-triazolesN-oxides **3** according to the S_N^H scheme. This is the most effective strategy for this transformation, because it does not require transition metal catalyst and using the protective group.

Further transformation can be implemented in two ways. After the formation of adduct **4**, if a deoxyginating agent is present in the reaction mixture, the reaction proceeds according to the additionelimination process, S_N^H(AE), with the formation of products **5**. On the contrary, if an oxidant is present rather than deoxyginating agent, reaction takes place as an addition-oxidation process S_N^H(AO) giving compounds **6.**



Scheme 1. C-C Coupling of pentafluorophenyl lithium with 2*H*-imidazole-1-oxide

The obtained perfluorophenylsubstituted 2*H*-imidazoles and 1,2,3-triazoles which are of interest in the field of medical chemistry, chemical sensors and molecular electronics.

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